

REMARKS

Reconsideration and allowance of the above-identified application are respectfully requested.

Claims 1-52 are currently pending, wherein claims 1, 13, 26 and 39 are independent. Claims 9-14, 21-25, 34, 37, 38, 47 and 50-52 have been amended.

Applicants note with appreciation the acknowledgment by the Patent Office of the Information Disclosure Statements previously submitted to the Patent Office.

Applicants note with appreciation the characterization of claims 1-3, 5-8, 13-15, 17-20, 26-28, 30-33, 39-41 and 43-46 as being allowable if the objections cited in the Office Action are overcome.

In the first section of the Office Action, the drawings are objected to, because: a.) in Figure 5, the "address generator 530" is suggested to be changed to "address generator 804"; and b.) all drawings are suggested to be labeled with not only reference numbers, but also with reference names. Applicants hereby amend the specification to change "address generator 804" to "address generator 530" to provide consistency between the specification and drawings. Applicants hereby amend the drawings to include reference names along with reference numbers for the labels. Consequently, Applicants hereby submit seventeen (17) sheets of formal drawings for Figures 1-17 for review by the Patent Office in connection with the above-identified application, each sheet marked "REPLACEMENT SHEET." Should the enclosed drawings require changes, it is respectfully requested that the Patent Office notify the undersigned of same. Accordingly, reconsideration and withdrawal of these grounds of objection are respectfully requested.

In the second section of the Office Action, the specification is objected to for the reasons listed on pages 2 – 3 of the Office Action. In particular, the disclosure is objected to, because, throughout the specification, the application numbers for the referenced applications are suggested to be completed. Applicants hereby amend the specification to insert the application numbers for the referenced applications. In addition, on page 3, line 22, “interleaver 306” is suggested to be changed to “deinterleaver 308.” Applicants hereby amend the specification to change “interleaver 306” to “deinterleaver 308” on page 3, line 22.

Furthermore, on page 18, line 15, “LLR” is suggested to be defined. Applicants respectfully note that the acronym “LLR” is defined on page 19, lines 8-12 of the present application, which states that “[i]n the SSP algorithm, the magnitudes of the extrinsic information conveyed in each equation are determined by the two *log-likelihood ratios* with the smallest amplitudes. Other *LLR*’s only contribute to the sign of the information, not the amplitude.” [present application, page 19, lines 8-10 (emphasis added)] However, to facilitate prosecution in the present application, Applicants hereby amend the specification at page 18, line 15 merely to clarify the definition of the acronym “LLR”.

Additionally, on page 22, line 31, “soft channel decoder 914” is suggested to be changed to “soft channel decoder 504.” Applicants hereby amend the specification to change “soft channel decoder 914” to “soft channel decoder 504” on page 22, line 31.

Applicants have reviewed the specification of the present application and made appropriate amendments where necessary merely to ensure that the aforementioned and other informalities are addressed throughout of the present application. These amendments are made merely to clarify the language of the specification, and are not made for any purpose related to patentability. No new matter has been introduced by way of these amendments.

Accordingly, reconsideration and withdrawal of these grounds of objection are respectfully requested.

In the third section of the Office Action, claims 9-25 and 34 are objected to, because of the informalities listed in the third section of the Office Action. These objections are respectfully traversed.

According to M.P.E.P. § 2173.02,

[t]he examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph, is whether the claim meets the threshold requirements of clarity and precision, *not* whether more suitable language or modes of expression are available. . . . Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, *but should not reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement.* [M.P.E.P. § 2173.02 (emphasis added)]

Given the "latitude in the manner of expression and the aptness of terms" afforded to the Applicants, it is respectfully submitted that the aforementioned claims are clear and precise and fully comply with the requirements of 35 U.S.C. § 112, second paragraph.

Consequently, Applicants respectfully submit that there is no statutory basis for the objections to the claims based on "informalities."

However, to facilitate prosecution in the present application, Applicants hereby amend claims 9-25 and 34 merely to address the informalities noted by the Patent Office. These amendments do not narrow or otherwise limit the scope of the claims, are not made for any purpose related to patentability or to satisfy any statutory requirement, and are fully supported by the present application. No new matter has been introduced by way of these amendments. In addition, Applicants have reviewed all claims of the present application and

made appropriate amendments where necessary merely to ensure that the aforementioned informalities are addressed in all claims of the present application. Accordingly, reconsideration and withdrawal of these grounds of objection are respectfully requested.

Applicants respectfully submit that claims 1-3, 5-8, 13-15, 17-20, 26-28, 30-33, 39-41 and 43-46 are in condition for allowance.

In the fifth section of the Office Action, claims 9-12, 21-25, 34-38 and 47-52 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. These rejections are respectfully traversed.

According to M.P.E.P. § 2164.01,

[t]he standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court decision of *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916) which postured the question: is the experimentation needed to practice the invention undue or unreasonable? That standard is still the one to be applied Accordingly, even though the statute does not use the term “undue experimentation,” it has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation.
[M.P.E.P. § 2164.01]

The Patent Office asserts that “it is not obvious to the examiner whether claims 9-12, 21-25, 34-38, and 47-52 should include reference to information 11rAPP_i, or information 11rAPP_k.”

[Office Action, page 4] However, it is respectfully submitted that the Patent Office's statement does not comport with the proper analysis of the enablement requirement under 35 U.S.C. § 112, first paragraph. Rather, a proper determination requires an analysis of many undue experimentation factors, such as those listed in M.P.E.P. § 2164.01(a). Accordingly,

[i]t is improper to conclude that a disclosure is not enabling based on an analysis of only one of the [factors listed in M.P.E.P. § 2164.01(a)] while ignoring one or more of the others. The examiner's analysis *must* consider *all* the evidence related to each of these factors, and any conclusion of

nonenablement must be based on the evidence *as a whole*. [M.P.E.P. § 2164.01(a) (emphasis added)]

According to the present application, “llrAPP_{*i*}” is defined as the overall soft information after each iteration, *one for each bit*. [see present application, page 18, line 5 (emphasis added)] Thus, one of ordinary skill in the art would recognize that the subscript “*i*” is merely an *index* used for representing llrAPP for each bit (e.g., llrAPP₁, llrAPP₂, . . . , llrAPP₅₄₀₂ in one exemplary embodiment). As the subscript “*i*” is merely an index, it is respectfully submitted that *any* letter can be used to represent the index for the variable “llrAPP”. For example, in the claims of the present application, the Applicants have chosen to use the subscript “*k*” to represent the index for “llrAPP”, and have adequately and sufficiently defined the index “*k*” for “llrAPP_{*k*}” in the claims. Such use of the index “*k*” finds support, for example, in the summary of the present application. [see present application, page 5, line 9 to page 12, line 21] In the detailed description, the index “*i*” is used, and is adequately and sufficiently disclosed therein. However, it is respectfully submitted that *any* letter can be used for the index for “llrAPP” and not alter or change the meaning or scope of that variable. Consequently, it is respectfully submitted that no undue or unreasonable experimentation would be needed to enable a person skilled in the art to make and use the invention. Accordingly, it is respectfully submitted that claims 9-12, 21-25, 34-38 and 47-52 fully comply with the enablement requirement of 35 U.S.C. § 112, first paragraph.

However, to facilitate prosecution in the present application, Applicants hereby amend claims 11, 12, 21, 24, 25, 34, 37, 38, 47, 50, 51 and 52 to change “|llrAPP_{*k*}|” to

"| llrAPP_l |" merely to change the index used for " llrAPP ." Support for these amendments can be found at least on page 23, line 30 to page 24, line 24 of the present application. Additionally, Applicants also hereby amend the specification and Figures 14 and 15 to change " llrAPP_k |" to " llrAPP_l |" merely to change the index used for " llrAPP " in the specification and figures.

In addition, Applicants have reviewed all claims, the specification and figures of the present application and made appropriate amendments where necessary to change the subscript "k" to the subscript "l" in the claims, specification and figures, as any letter can be used as an index and not change the meaning or scope of the associated variable.

Since Applicants are merely performing a cosmetic change to change the letter used for the subscript, as *any* letter can be used as an index, such as for the variable " llrAPP ," it is respectfully submitted that these amendments do not narrow, limit or otherwise alter or change the scope of the claims in any way, are not made for any purpose related to patentability or to satisfy any statutory requirement, and are fully supported by the present application.

No new matter has been introduced by way of any of these amendments.

Accordingly, reconsideration and withdrawal of these grounds of rejection are respectfully requested.

In the seventh section of the Office Action, claims 4, 9-12, 16, 21-25, 29, 34-38, 42 and 47-52 are rejected under 35 U.S.C. § 112, second paragraph, for alleged indefiniteness. In particular, the Patent Office asserts that the variable " llrP_l " must be defined in claims 4,

16, 29 and 42, and the variable “ LrAPP_i ” must be defined in claims 9-12, 21-25, 34-38 and 47-52. This rejection is respectfully traversed.

According to M.P.E.P. § 2173.01,

[a] fundamental principal contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose *so long as any special meaning assigned to a term is clearly set forth in the specification* Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the court in *In re Swinehart*, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought. [M.P.E.P. § 2173.01 (emphasis added)]

Furthermore,

[t]he meaning of every term used in a claim should be apparent from the prior art or from the specification and drawings at the time the application is filed When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art. [M.P.E.P. § 2173.05(a)]

Applicants respectfully note that the specification of the present application clearly defines the meaning of the variables “ LrP_i ” and “ LrAPP_i ”. At page 17, line 29, the variable “ LrP_i ” is defined as “[t]he soft information from channel APP (*a posteriori* probability) decoder or soft channel decoder 504 for the first iteration or from decision aided equalization circuit 856 for subsequent iterations, one for each bit.” At page 18, line 5, the variable “ LrAPP_i ” is defined as “the overall soft information after each iteration, one for each bit.” Consequently, it is respectfully submitted that the specification of the present application clearly sets forth the “special meaning” assigned to these terms. Given that Applicants can

be their own lexicographers and that the meaning of these variables is apparent from the specification, contrary to the assertions of the Patent Office, it is respectfully submitted that claims 4, 9-12, 16, 21-25, 29, 34-38, 42 and 47-52 particularly point out and distinctly claim the subject matter for which the Applicants regard as the invention.

Accordingly, reconsideration and withdrawal of these grounds of rejection are respectfully requested.

All of the objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance and a notice to that effect is earnestly solicited. Should the Examiner have any questions regarding this response or the application in general, the Examiner is urged to contact the Applicant's attorney, Andrew J. Bateman, by telephone at (202) 625-3547. All correspondence should continue to be directed to the address given below.

Respectfully submitted,

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